

DOCKET NO. D-88-54-3

DELAWARE RIVER BASIN COMMISSION

**Waste Management Disposal Services of Pennsylvania, Inc.
Landfill Leachate Treatment Plant Discharge Modifications
Falls Township, Bucks County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an application submitted by Waste Management Disposal Services of Pennsylvania, Inc. on November 28, 2005 for review of proposed leachate treatment plant (LTP) discharge modifications. The Pennsylvania Department of Environmental Protection (PADEP) supports the proposed modifications, but it is withholding its modified Pollutant Discharge Elimination System (NPDES) Permit No. PA 0043818 until the project is approved by the Delaware River Basin Commission (DRBC).

The application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The Bucks County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on September 27, 2006.

A. DESCRIPTION

1. Purpose. The purpose of this project is to allow an interim increase in the LTP's average discharge concentration of total dissolved solids (TDS) from 10,000 mg/l to 15,000 mg/l, while the docket holder conducts a more intensive environmental study to demonstrate that a higher concentration would also be acceptable. The LTP utilizes the best practicable treatment technology available to process flows primarily from the GROWS and Tullytown Landfills, but can not consistently meet the average monthly effluent limits for TDS. However, PADEP's instantaneous maximum and the daily maximum effluent TDS limits are consistently being met. In support of its requested modifications, the docket holder's consultant, TurnKey Environmental Services, Inc. of Newtown Square, Pennsylvania, has completed a report that concludes that the changes would result in no significant impact to the Delaware Estuary. PADEP and DRBC staff has reviewed the report entitled, "Recommended Adjustments to Effluent Limitations for Total Dissolved Solids," dated November 23, 2005 and both concur with the findings. No increase in treatment plant capacity and no increase of Carbonaceous Biochemical Oxygen Demand (CBOD) loading are proposed.

2. Location. The project LTP is located at the GROWS Landfill off Bordentown Road and New Ford Mill Road in Falls Township, Bucks County, Pennsylvania. The docket holder owns approximately 6,000 acres of property along the Delaware River in Falls Township and adjacent Tullytown Borough. The LTP outfall discharges to the tidal Delaware River via a constructed discharge cove in Water Quality Zone 2.

The project outfall is located on the *Trenton, West* USGS Quad as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
001	40° 07' 03"	74° 45' 30"

The LTP outfall is located in Water Quality Zone 2 at River Mile 125.64 – 1.0.

3. Area Served. The leachate treatment plant serves the Tullytown and GROWS Landfills and is located off Bordentown Road in Falls Township, Bucks County, Pennsylvania. In addition, non-hazardous waste liquids and sludges that are approved by PADEP are disposed at the landfills. Some of this waste stream originates from municipalities that are located outside of the Delaware River Basin, therefore 100 percent removal of the pollutant loading is required of these truck-transported waste streams.

a. In-basin wastes: residential and commercial refuse; incinerator ash and PADEP-approved specialty wastes; plus municipal and private sewage treatment plant sludge.

b. Out-of-basin wastes: residential and commercial refuse; incinerator ash and PADEP-approved specialty wastes; plus municipal and private sewage treatment plant sludge.

For the purpose of defining the Area Served, the Application is incorporated herein by reference consistent with conditions contained in the DECISIONS section of this docket.

4. Physical features.

a. **Design criteria.** The existing 0.1 million gallon per day (mgd) LTP utilizes the best available treatment technology that is practicable for processing landfill leachate, but it cannot consistently meet the average monthly effluent TDS concentration limit of 10,000 mg/l. The docket holder has submitted a report that concludes that an interim increase in average monthly effluent TDS concentration to 15,000 mg/l would result in no significant impact to the Delaware Estuary. The docket holder has agreed to conduct an intensive, on-site biological assessment in coordination with PADEP and DRBC staff to demonstrate that an ultimate increase of average monthly effluent TDS concentration to 19,100 mg/l would also be acceptable.

Approximately 3,000 mg/l of the LTP effluent TDS originates from the routine addition of chemicals to the leachate treatment process to facilitate ammonia stripping, metals precipitation, and sludge conditioning. Also, incinerator ash is disposed at the landfills, which typically increases the LTP's effluent TDS concentration. The LTP discharge to the Delaware

River, via a constructed discharge cove in Water Quality Zone 2, increases the background TDS in the estuary by less than 0.5 percent.

b. Facilities. The existing LTP at GROWS consists of the following facilities: a grit chamber, three aerated holding tanks, a metals precipitation unit, two ammonia scrubbing towers, four aerated chemical/biological units, four secondary clarifiers, two sand filters, a chlorine contact tank, two effluent holding tank, and a sludge belt filter press.

Prior facilities and processes for the LTP have been described in DRBC Dockets Nos. D-88-54-2, D-88-54, D-83-27, and D-74-138, approved by DRBC on January 19, 2005, September 28, 1988, September 14, 1983, and December 4, 1974, respectively.

The project facilities are above the 100-year flood elevation.

An emergency power generator is available on-site.

Waste sludge is hauled off-site by a licensed hauler for deposit at a State-approved facility.

c. Water withdrawals. The potable water supply at the Tullytown and GROWS Landfills is bottled water that is obtained from commercial sources. At GROWS landfill, water for sanitary use is provided by on-site wells, which have a collective yield that is less than DRBC project review requirements. Both landfills use water for industrial purposes, such as on-site dust control and maintenance purposes. This water is obtained from nearby lakes, which were former quarries that the docket holder owns. The withdrawal of water from these lakes for use at these landfills was approved by Docket No. D-91-90 on February 26, 1992 and has no expiration date.

d. NPDES Permit / DRBC Docket. The National Pollutant Discharge Elimination System (NPDES) Permit No. PA 0043818 approved by PADEP on March 10, 2005, will be amended following DRBC docket approval to include modified effluent limitations for the project discharge of 0.1 mgd to surface waters classified by the PADEP as a warm water fishery that supports migratory fish passage and various Water Quality Zone 2 uses, including potable water supply, recreation and navigation. The following average monthly effluent limits are among those of the NPDES permit and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE: DRBC Parameters (*) Included in NPDES permit for Outfall 001

OUTFALL 001 - Discharges to Delaware River Estuary in WQZ 2		
PARAMETER	LIMIT	MONITORING
pH (Standard Units)	6 to 9 at all times *	as required in the NPDES Permit
Total Suspended Solids	30 mg/l (85% minimum removal *)	as required in the NPDES Permit
Total Dissolved Solids	15,000 mg/l *	4/month
BOD (5-Day)	53 mg/l	as required in the NPDES Permit
CBOD (20-Day)	62 lbs/day *	as required in the NPDES Permit
Ammonia (as N)	35 mg/l *	as required in the NPDES Permit
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	as required in the NPDES Permit
Oil and Grease	15 mg/l	as required in the NPDES Permit
True Color (Pt-Co)	1,500 units (instantaneous maximum *)	as required in the NPDES Permit
Total Residual Chlorine	0.5 mg/l	as required in the NPDES Permit
Antimony, Total	0.45 mg/l	as required in the NPDES Permit
Arsenic, Total	0.05 mg/l	as required in the NPDES Permit
Beryllium	0.005 mg/l	as required in the NPDES Permit
Boron	5.64 mg/l (supplemental monitoring proposed)	as required in the NPDES Permit
Chromium, Total	0.05 mg/l (existing limit) 0.1 mg/l (proposed BAT-based limit)	as required in the NPDES Permit
Aluminum, Total	0.275 mg/l	as required in the NPDES Permit
Cobalt, Total	0.05 mg/l	as required in the NPDES Permit
Cadmium, Total	0.005 mg/l	as required in the NPDES Permit
Iron, Total	2.5 mg/l	as required in the NPDES Permit

OUTFALL 001 - Discharges to Delaware River Estuary in WQZ 2		
PARAMETER	LIMIT	MONITORING
Barium	0.1 mg/l	as required in the NPDES Permit
Mercury	0.0019 mg/l	as required in the NPDES Permit
Nickel	0.3 mg/l	as required in the NPDES Permit
Cyanide, Total	0.1 mg/l	as required in the NPDES Permit
Phenol	0.05 mg/l	as required in the NPDES Permit
Thallium	0.1 mg/l	as required in the NPDES Permit
Copper, Total	0.05 mg/l	as required in the NPDES Permit
Lead, Total	0.036 mg/l	as required in the NPDES Permit
Manganese	1 mg/l	as required in the NPDES Permit
Zinc, Total	0.3 mg/l	as required in the NPDES Permit
Bromoform	0.54 mg/l (annual average)	as required in the NPDES Permit
Total Halomethanes	0.027 mg/l (annual average)	as required in the NPDES Permit
Chloroform	0.01 mg/l	as required in the NPDES Permit
Methylene Chloride	0.1 mg/l	as required in the NPDES Permit
Chloromethane	0.1 mg/l	as required in the NPDES Permit
Toluene	0.05 mg/l	as required in the NPDES Permit
Butyl Benzyl Phthalate	0.01 mg/l	as required in the NPDES Permit
2-Chloronaphthalene	0.01 mg/l	as required in the NPDES Permit
Diethyl Phthalate	0.025 mg/l	as required in the NPDES Permit

OUTFALL 001 - Discharges to Delaware River Estuary in WQZ 2		
PARAMETER	LIMIT	MONITORING
Lindane	0.01 mg/l	as required in the NPDES Permit
Isophorone	0.05 mg/l	as required in the NPDES Permit
Acetone	0.109 mg/l	as required in the NPDES Permit
2-Butanone	0.21 mg/l	as required in the NPDES Permit
1,2,3-Trichloropropane	0.1 mg/l	as required in the NPDES Permit
Xylene	0.01 mg/l	as required in the NPDES Permit
1-Propanol	0.55 mg/l	as required in the NPDES Permit
2-Propanol	0.54 mg/l	as required in the NPDES Permit
4,4 DDT	0.00004 mg/l	as required in the NPDES Permit
Total Phenols	0.27 mg/l	as required in the NPDES Permit
Tetrahydrofuran	0.025 mg/l	as required in the NPDES Permit
P-Cresol	0.05 mg/l	as required in the NPDES Permit
2-Hexanone	0.015 mg/l	as required in the NPDES Permit
Dibromomethane	0.01 mg/l	as required in the NPDES Permit
1,1,1-Trichloromethane	0.1 mg/l	as required in the NPDES Permit
1,2-Trans Dichloroethylene	0.03 mg/l	as required in the NPDES Permit
4-Methyl-2-Pentalone	0.015 mg/l	as required in the NPDES Permit
Benzene	0.05 mg/l	as required in the NPDES Permit
Chlorobenzene	0.05 mg/l	as required in the NPDES Permit

OUTFALL 001 - Discharges to Delaware River Estuary in WQZ 2		
PARAMETER	LIMIT	MONITORING
1,1 Dichloroethane	0.09 mg/l	as required in the NPDES Permit
Di-N-Butyl Phthalate	0.83 mg/l	as required in the NPDES Permit
Chronic and Acute Toxicity	**	**

** - DRBC Whole Effluent Toxicity Requirements for Estuary Dischargers

The permittee must perform quarterly Whole Effluent Toxicity (WET) tests to generate acute and chronic toxicity data on the cladoceran, *Ceriodaphnia dubia* and the fathead minnow, *Pimephales promelas* for the first two years of the docket cycle. The results shall be reported as No Observed Effect Concentration (NOEC) and Chronic Toxic Units (TU_c) with a Percent Minimum Significant Difference (PMSD) reported. The results shall also be reported as Inhibitory Concentration, 25 percent (IC₂₅). After completing four acceptable toxicity tests, the permittee may request that testing be limited to the most sensitive species. After two years, the testing frequency may be reduced or eliminated based on the results.

In lieu of conducting separate acute and chronic toxicity tests, the permittee may utilize the survival data from chronic toxicity tests to calculate 48-hour and 96-hour LC₅₀. The 48-hour and 96-hour LC₅₀ data and Acute Toxic Units (TU_a) shall also be reported with the chronic toxicity results.

The testing should follow USEPA guidance on Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms.

B. FINDINGS

The limits in the NPDES Permit are in compliance with Commission effluent quality requirements, where applicable. The effluent limitations represent the more stringent of water quality-based and technology-based criteria. PADEP regards the LTP as providing the best available treatment technology practicable and conservatively uses 1 % of the 2,500 cfs regulatory low flow target at the Trenton Gage Station to determine effluent compliance with in-stream water quality objectives.

The proposed project is designed to produce a discharge meeting the effluent requirements as set forth in the *Water Quality Regulations* of the DRBC, with exception of TDS, as noted above. Effluent from the LTP will continue to exceed the basin-wide effluent TDS

concentration limit of 1,000 mg/l (absent justification for a site-specific determination for the suitability for a higher limit). Rapid dispersion occurs in the estuary, such that the Delaware River in Water Quality Zone 2 effectively assimilates the proposed average monthly effluent TDS limit of 15,000 mg/l, as reported in the docket holder's submittal. In addition, the percent increase of TDS in the tidal Delaware River, expected as a result of the project discharge during low streamflow conditions, has been determined to be less than a 0.5 percent increase of background TDS. Therefore, staff has determined that the proposed average monthly effluent TDS limit of 15,000 mg/l, as included in the amended NPDES Permit, is consistent with DRBC Water Quality Standards and compatible with the designated water uses and stream quality objectives. Any future consideration of an increase in average monthly effluent TDS limit of 19,100 mg/l, must be based on the satisfactory findings of an intensive biological study, which must be coordinated with PADEP and DRBC.

The nearest surface water intake of record for public water supply downstream of the project discharge is operated by the Lower Bucks County Joint Municipal Authority at River Mile 122.3. This intake is approximately 4.3 river-miles downstream from the GROWS LTP outfall. There are no currently operational potable water supply intakes of record that are upstream from the project discharge within the tidal area.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

C. DECISION

I. Effective on the approval date for Docket No. D-88-54-3 below, the project described in Docket No. D-88-54-2 is terminated and replaced by Docket No. D-88-54-3.

II. The project and appurtenant facilities as described in the Section A of this docket entitled, "Physical features" above are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP in its NPDES permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. Commission approval of this docket is contingent on the PADEP's approval of the amended NPDES permit.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the *Water Quality Regulations* of the DRBC.

d. The docket holder shall maintain and make available to DRBC upon request, records identifying the sources, volumes and characteristics of all wastewaters and sludges treated at the LTP, as well as the dates when off-site wastes were received and treated. Records are to be retained for 5 years.

e. The docket holder shall comply with the requirements contained in the Effluent Table in the Section A.4.d. of this docket. The toxicity monitoring results should be forwarded to the Modeling and Monitoring Branch of the Commission on an annual basis.

f. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

g. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

h. The docket holder is permitted to treat and discharge the categories of wastewaters defined in the "Area Served" section of this docket.

i. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

j. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

k. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

l. A complete application for the renewal of this docket, or a notice of intent to cease the operations (withdrawal, discharge, etc.) approved by this docket by the expiration date, must be submitted to the DRBC at least 12 months prior to the expiration date below (unless permission has been granted by the DRBC for submission at a later date), using the appropriate DRBC application form. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below, the terms and conditions of this docket will

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remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

m. The Executive Director may modify or suspend this approval, or require mitigating measures, pending additional review.

n. The docket holder and any other person aggrieved by a reviewable action or decision taken by the Executive Director or Commission pursuant to this docket may seek an administrative hearing pursuant to Articles 5 and 6 of the Commission's *Rules of Practice and Procedure*, and after exhausting all administrative remedies may seek judicial review pursuant to Article 6, section 2.6.10 of the *Rules of Practice and Procedure* and section 15.1(p) of the Commission's *Compact*.

BY THE COMMISSION

DATE APPROVED: September 27, 2006

EXPIRATION DATE: March 10, 2010